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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/044,548

01/11/2002

Jin Wook Kim

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09/07/2004

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EXAMINER

KRISHNAMURTHY, RAMESH

ART UNIT

PAPER NUMBER

3753

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/044,548	Applicant(s) KIM, JIN WOOK	
	Examiner Ramesh Krishnamurthy	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This office action is responsive to communications filed 07/06/04.

1. The replacement drawing sheets were received on 06/07/04. These drawings are approved.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 3 – 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asaoka (US 4,860,788) in view of Grant (US 5,533,548).

Asaoka discloses (Fig. 3, for example) a pilot poppet type pressure control valve that includes a main poppet (27) that has a boundary between a high pressure chamber and a back pressure chamber, is elastically supported by a second elastic member (31), reciprocates based on an interrelationship between a pressure of the back pressure chamber with respect to the pressure of the high pressure chamber and an elastic force of the second elastic member for thereby opening and closing a discharging flow path of the high pressure chamber, and a pilot poppet (35) which is elastically supported by a first elastic member (37) in the discharging port (near (38)) of the back pressure chamber, reciprocates based on an interrelationship between a pressure of the back pressure chamber and an elastic force of the first elastic member for thereby opening and closing the discharging port of the back pressure chamber wherein the pilot poppet seals the discharging port of the back pressure chamber by a supporting force of the first elastic member when the pressure of the chamber is below a set pressure level,

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and the discharging flow path of the chamber is closed by the main poppet to which the back pressure of the chamber is applied, and the pilot poppet opens the discharging flow path of the chamber to the main poppet to which the pressure of the chamber is applied as the pilot poppet opens the discharging port by the pressure of the chamber when the pressure of chamber exceeds set pressure level. The linear surface of pilot poppet being in contact with the surface of the discharging port is disclosed in Fig. 3 of Asaoka.

The device disclosed by Asaoka fails to explicitly disclose a gradual increase in the diameter of the discharging port in the downstream direction.

Grant ('548) discloses a poppet type pressure relief valve (10) having a valve element (14) seating against an arcuate surface (50) of the discharging port defined by a valve seat (46) whose inner diameter changes gradually in the downstream direction (Figs. 1, 2) for the purpose of eliminating valve noise (Col. 1, lines 45 - 47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in the valve disclosed by Asaoka a discharge port whose area changes gradually in the downstream direction for the purpose of eliminating valve noise as recognized by Grant ('548).

Regarding claim 3, it is noted (Fig. 3) that the poppet has an outer surface with a sealing portion whose diameter gradually increases.

Regarding claim 4, it is noted that the valve disclosed by Asaoka further comprises a piston (28) that reciprocates in the main poppet (27) to and fro, is elastically supported by a second elastic member (31) and opens the pilot poppet (35)

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together with the main poppet (27) when the piston (28) is moved by the pressure in the high pressure chamber .

Regarding claim 5, it is noted (Fig. 3) that the piston (1) includes an orifice (30) formed in the interior of the piston.

4. The declaration under 37 CFR 1.132 filed 07/06/04 is sufficient to overcome the rejection of claims 1 & 3 - 5 based upon the prior art admitted to by the applicant. The declaration effectively overcomes the characterization of subject matter of Figures 4 - 7 in the disclosure as constituting prior art admitted to by the applicant.

5. Applicant's amendment to the drawings necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Response to Arguments

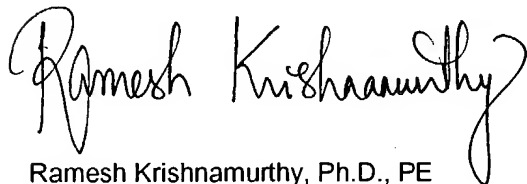
6. Applicant's arguments with respect to claims rejected above have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (703) 305 - 5295. The examiner can normally be reached on Monday - Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Scherbel, can be reached on (703) 308 - 1272. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 - 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0861.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ramesh Krishnamurthy, Ph.D., PE
Primary Examiner
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